NOKIA
CONSUMER ELECTRONICS

CIRCUIT DIAGRAM

SALORA SALORA

CTV CHASSIS N

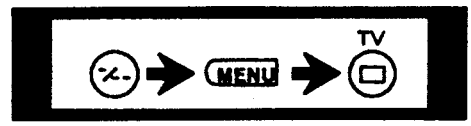
Types: 25N7S
28N7S

MAIN BOARD	VERSION	FOIL PRINT	USED IN TYPE
55 31600-03	-	03	25N7S
55 31600-02	C	03	28N7S

Service Mode

Service mode is a control part of the software. By means of the remote control, it is possible to align the geometry, set luma and stereotone parameters and set the option bits. Brightness, contrast and colour will work as normal.

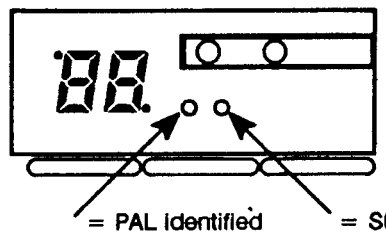
To enter service mode press the following buttons on the remote control in a quick succession:



Commands in Service Mode:

Command on the Remote Control	Function
STEP + STEP -	Steps from one alignment to another
Number buttons 0....9	Gives you direct access to alignments 0-9
VOLUME + VOLUME -	Increases / decreases the alignment value
Number buttons 0....7	Set or reset option bits and special codes
PROG -button	Stores all set parameter values
STAND BY -button	Exit from service mode

The Control Panel LEDs in Service Mode:



Screen Grid Voltage (G2)

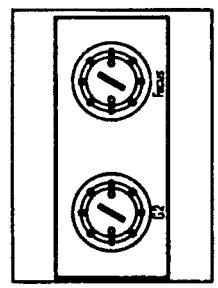
Use a test pattern (Philips) and adjust brightness, contrast and colour saturation for normal settings.

- Set the oscilloscope to vertical frequency and connect to testpoint T 03 (-R) using a serial resistance of 4.7k 0 10k.
- Measure the DC-level for the dark level
- Repeat the same procedure for T 02 (-G) and T 01 (-B).
- Connect the oscilloscope to the testpoint that showed the highest dark-level.
- Remove the cover plate at the rear of the Main PCB frame.
- Adjust the G2 potentiometer until the dark level reach 140V.

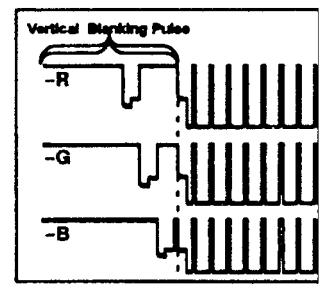
Focus Adjustment

Use a test pattern (Philips) and adjust contrast close to maximum and brightness for a well balanced grey scale.

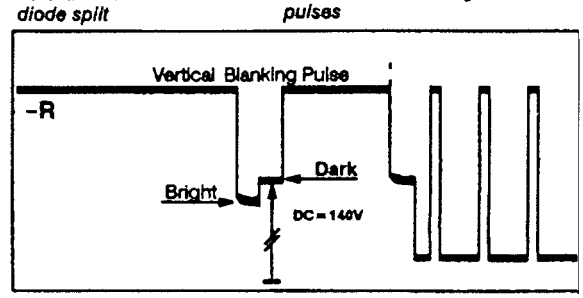
- Remove the cover plate at the rear of the Main PCB frame.
- Adjust focus to an optimum using the Focus potentiometer



Potentiometers on the diode split



The time for the bright and dark pulses



The site of the bright and dark pulses

Service Alignments

Make alignments 0–3 before proceeding to the other geometrical alignments.

	Display	Function		Display	Function		Display	Function
0	UA	Vertical amplitude alignment	5	HA	Horizontal amplitude	10	Cr	Colour red
1	UL	Vertical linearity alignment	6	Pt	Parabola tilt	11	Cb	Colour blue
2*	SC	S. Correction	7	PA	Parabola amplitude	12	Ub	Vertical breathing
3	UP	Vertical position	8	PC	Parabola corner	13	Ld	Luma delay
4	HP	Horizontal position	9	C9	Colour green	14	AL	Audio level (Channel separation A2 stereo)

* This function is not possible to adjust in the first generation of MC 44000

Display of the Screen Grid Voltage Limits

In alignment 0–13 two dots in the LED display will show the G2 limits

High limit Low limit

N.B. The indication of the G2 limits is intended as a warning - not as alignment guidance.

Please consult the Service Manual prior to any adjustments of the G2 level.

Vertical Breathing Alignment

1 Adjust Vertical Amplitude (0) when brightness and contrast are set to maximum

2 Reduce brightness and contrast until the picture almost vanishes out of sight

If the vertical amplitude now has changed – continue with step 3

3 Re-establish the vertical amplitude by adjusting Vertical Breathing (12)

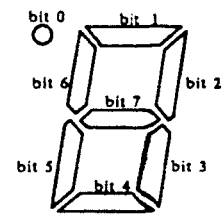
Setting the Option Bits

- Go to the appropriate position (15–18) according to the table below using the STEP buttons.
- Press the numerical key corresponding to the wanted bit (0–7) and the segment to the right will switch on or off accordingly.

	Display	Function
15	1	Option byte 1
16	2	Option byte 2
17	0	Program lock byte
18	r	Byte reserved for identification code

LED Display of the Option Bits

In alignment 15–18 the LED will display bit information by lighting the following segments:



On Screen Display (OSD) of the Option Bits

In alignment 15–18 the OSD will display bit information as the following decimal values:

To get the OSD value add the decimal value for each bit.

1 = bit 0
2 = bit 1
4 = bit 2
8 = bit 3
16 = bit 4
32 = bit 5
64 = bit 6
128 = bit 7

Option Byte 1

bit 0 / bit 1	TUNERS — bit 1 / bit 0: 0 0 = Philips; 0 1 = Telefunken; 1 0 = Salcomp; 1 1 = Telefunken
bit 2	No LED-display
bit 3	AFC
bit 4	NTSC
bit 5	Automatic adjustment of analog controls in EXT + SAT
bit 6	CTI
bit 7	Bleep in text

Byte Reserved for Identification Code

This byte is free for any dealer to use as an identification code or similar.

Option Byte 2

bit 0	East european CCT
bit 1	No display of text broadcast message (FLOF)
bit 2	Czech teletext
bit 3	Alternative OSD sync. 0 = Y2 1 = RGB
bit 4	Timeout to stand-by if no signal (sleep timer)
bit 5	Monitor keyboard

Program Lock Byte

Offers the possibility to prevent new settings from being stored. The **decimal** value of this byte (shown on screen) indicates the last programme number to be locked. (1–59) **0 = No positions locked**
Example: If you wish to lock the first 26 program numbers. You can either use the volume button and step until 26 is shown on screen or use the numerical keys to set bit 4, bit 3 and bit 1 (16 + 8 + 2).

SIGNAL PART MAIN BOARD

55 31600-17-18

A5

Audio Freq. Signal | Composite Video (FBAS) Signal | Vertical | Horizontal | IIC-bus

A6 A7 A8 A9

MAINS PART MAINBOARD A50

A10 RESET-CIRCUIT

A11 MICROCONTROLLER

A12 COLOUR DECODER SYNCHRONIZATION

A13 CHROMA-DELAY

A14 MEMORY

A15 AV-SWITCH

A16 AUDIO-PROCESSOR

A17 OUTPUT STAGE

A67 HP-AMPL

A73 TUNER PLL

A1 IF-MODULE

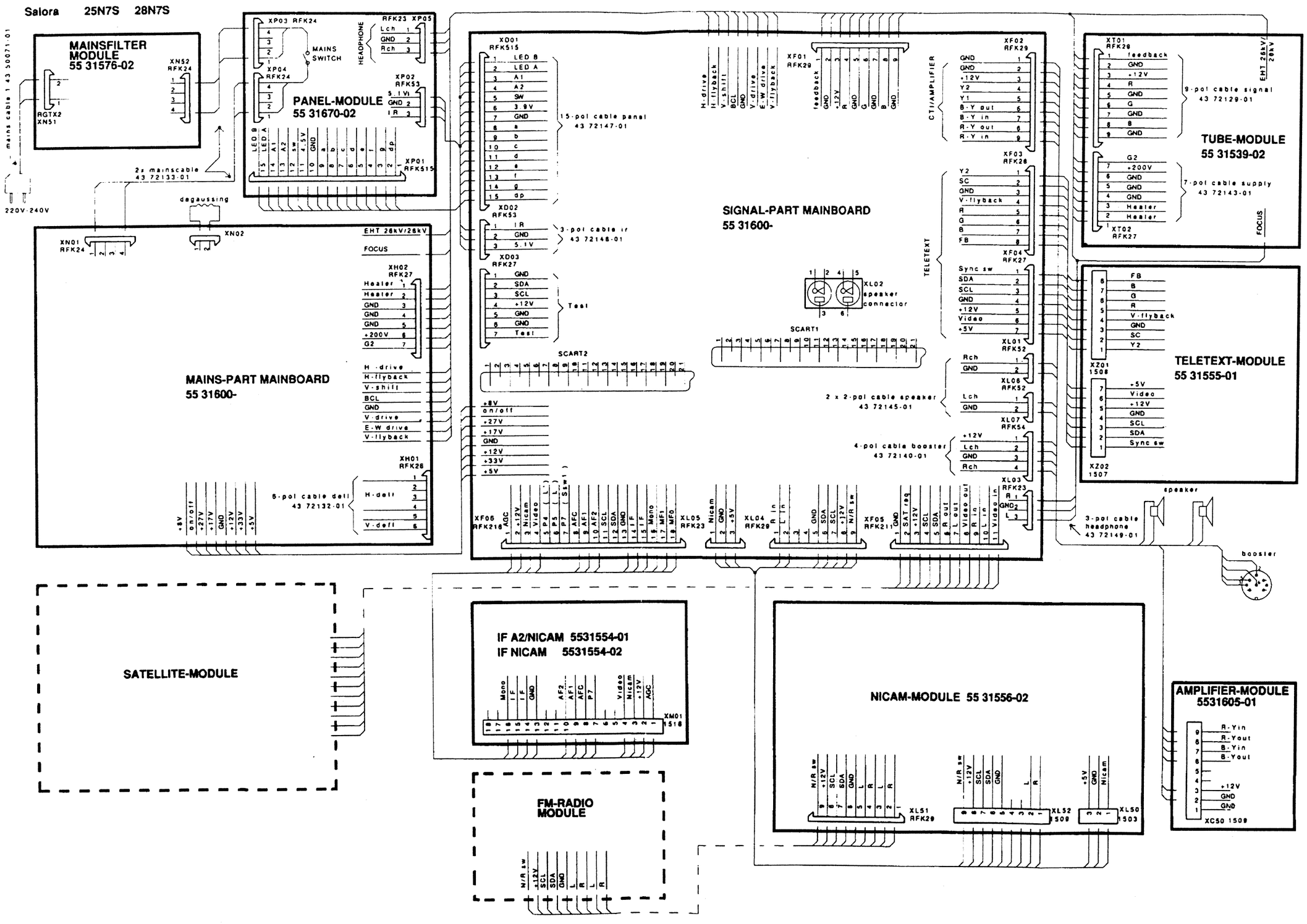
A31 NICAM-MODULE

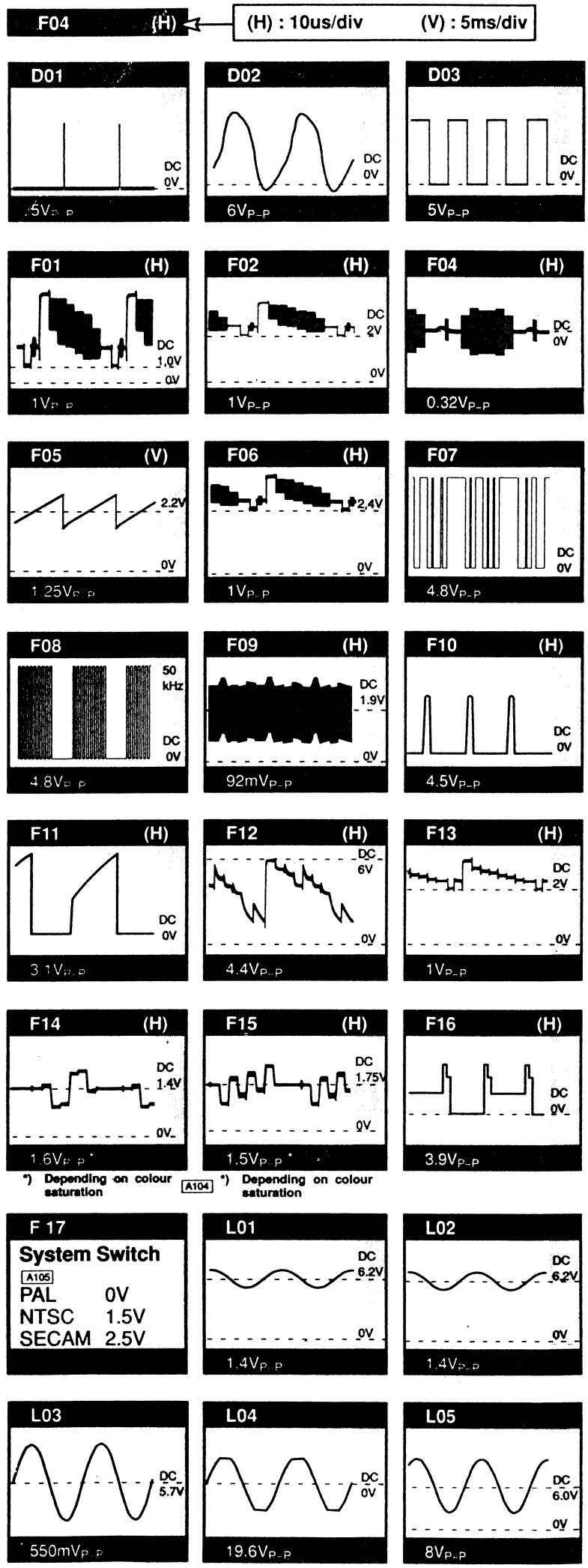
A38 SAT-MODULE

SCART1

SCART2

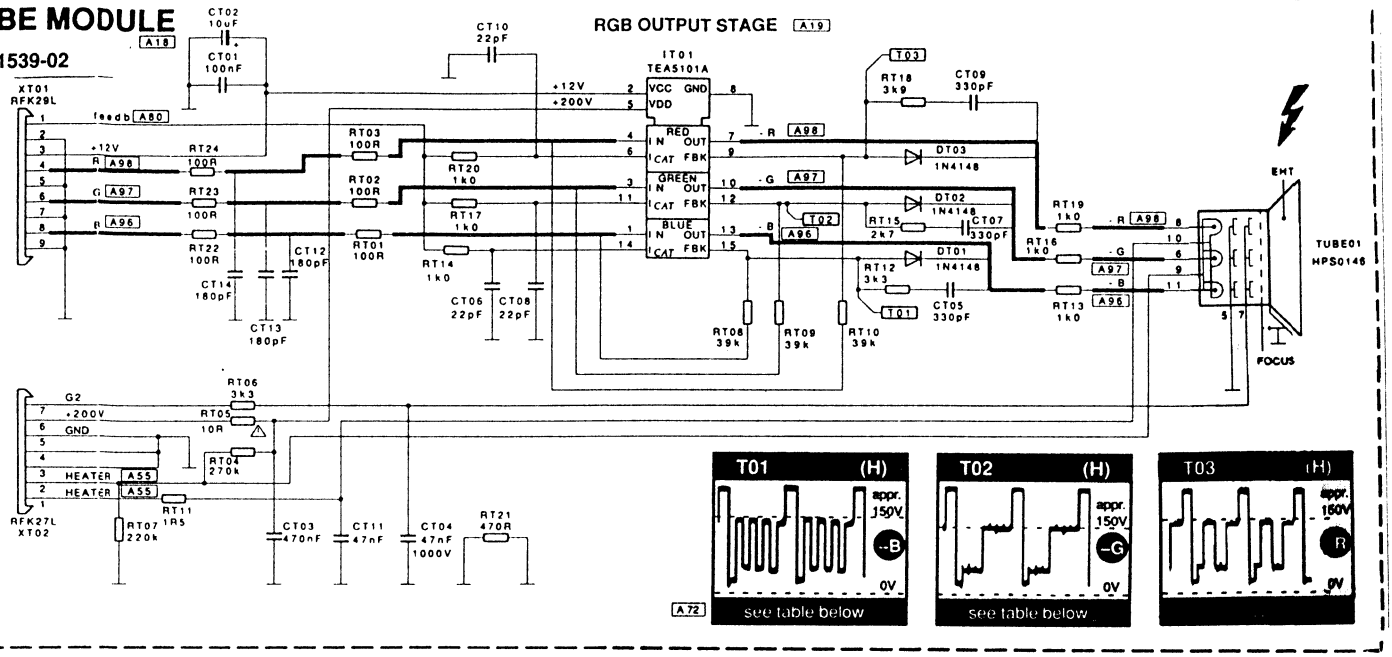
Connectors & Cable Diagram




F04 (H)
(H) : 10us/div (V) : 5ms/div
D01
DC 0V
5VP-P
D02
DC 0V
6VP-P
D03
DC 0V
5VP-P
F01 (H)
DC 1.0V
0V
1VP-P
F02 (H)
DC 2V
0V
1VP-P
F04 (H)
DC 0V
0.32VP-P
F05 (V)
2.2V
0V
1.25VP-P
F06 (H)
2.4V
0V
1VP-P
F07
DC 0V
4.8VP-P
F08
50 kHz
DC 0V
4.8VP-P
F09 (H)
DC 1.9V
0V
92mVP-P
F10 (H)
DC 0V
4.5VP-P
F11 (H)
DC 0V
3.1VP-P
F12 (H)
DC 6V
0V
4.4VP-P
F13 (H)
DC 2V
0V
1VP-P
F14 (H)
DC 1.4V
0V
1.6VP-P *
F15 (H)
DC 1.75V
0V
1.5VP-P *
F16 (H)
DC 0V
3.9VP-P
*) Depending on colour saturation
A104
*) Depending on colour saturation
F 17
System Switch
A105
PAL 0V
NTSC 1.5V
SECAM 2.5V
L01
DC 6.2V
0V
1.4VP-P
L02
DC 6.2V
0V
1.4VP-P
L03
DC 5.7V
550mVP-P
L04
DC 0V
19.6VP-P
L05
DC 6.0V
0V
8VP-P

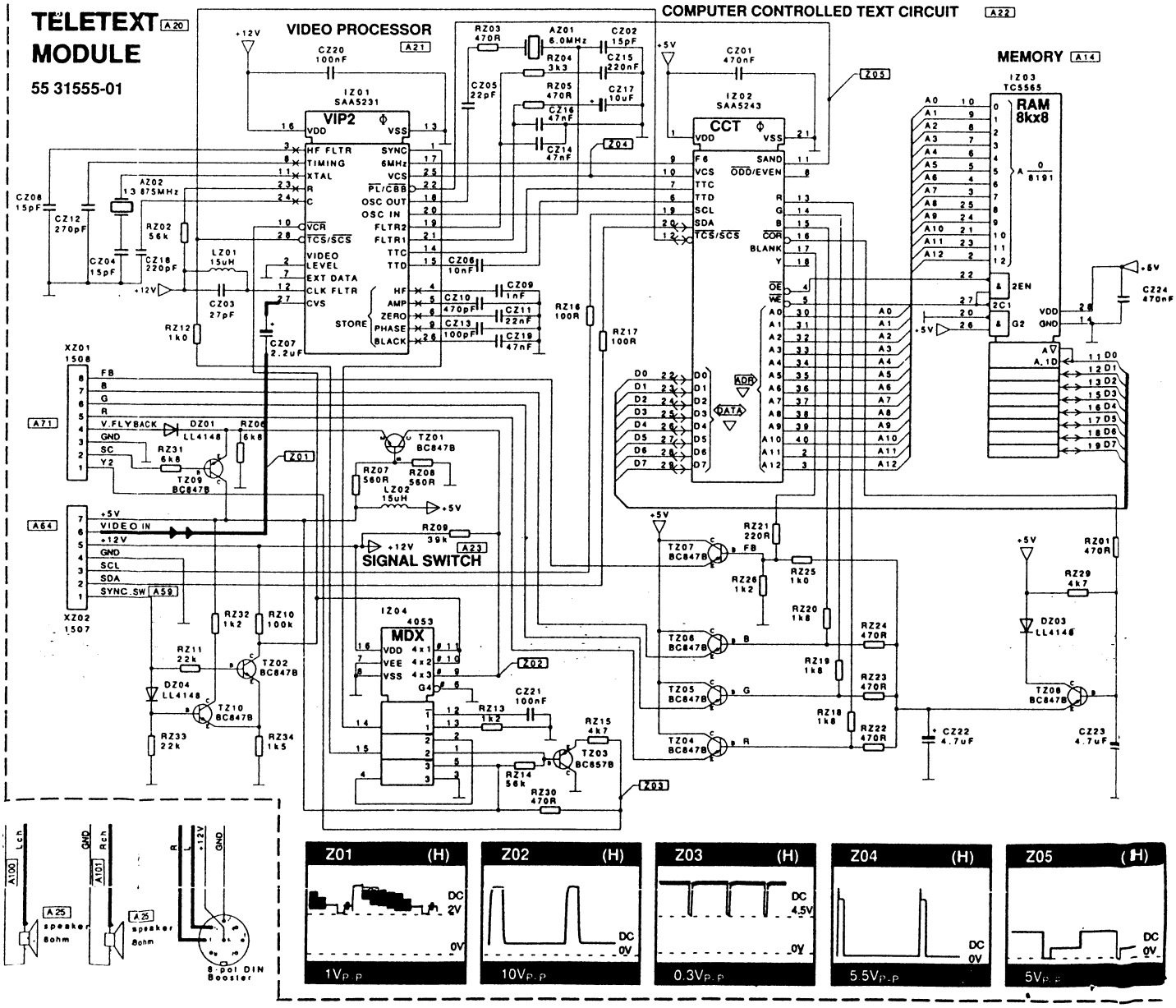
TUBE MODULE

55 31539-02



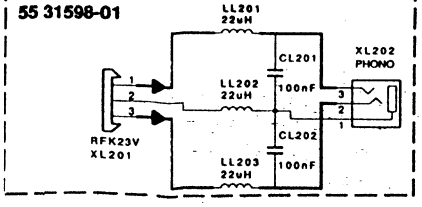
TELETEXT MODULE

55 31555-01



HEADPHONE-MODULE A24

55 31598-01



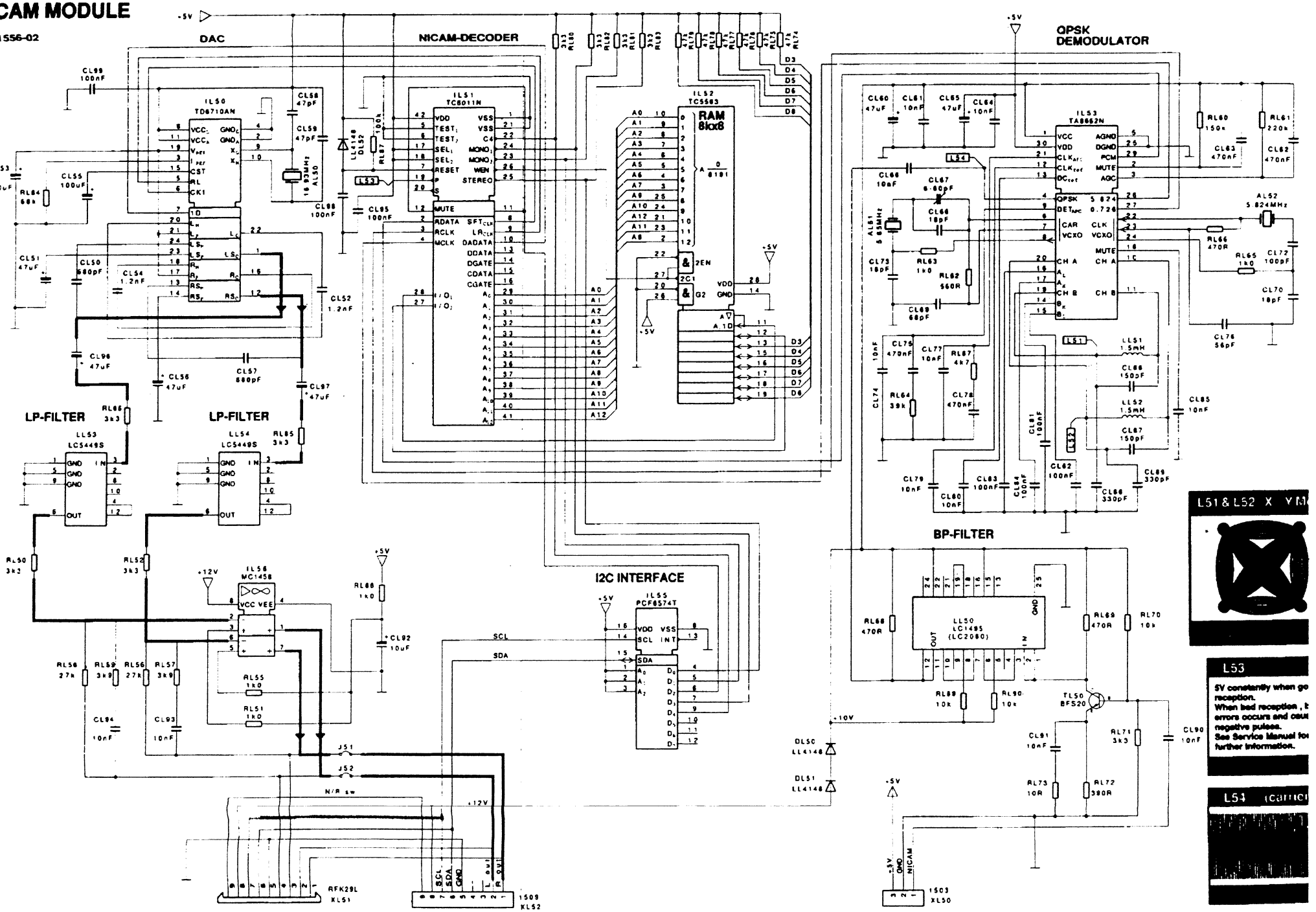
A102

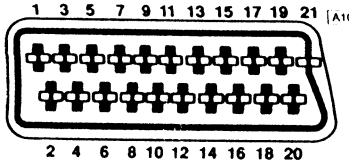
Relations Between the Signals for the Picture Tube

Test Point A103	Nokia Type	Philips Type
T03 (Red)	56V B-W	66V B-W
T02 (Green)	60V B-W	60V B-W
T01 (Blue)	56V B-W	54V B-W

NICAM MODULE

5 31556-02



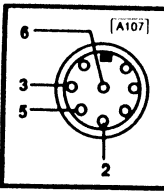


[A106]

1	AF OUT mono / stereo channel right	6	AF IN / stereo channel left	14	Data earth
2	AF IN mono / stereo channel right	7	RGB blue signal	15	RGB red signal
3	AF OUT mono / stereo channel left	8	Switch voltage	16	Blanking
4	AF earth	9	RGB green earth	17	Video earth
5	RGB blue earth	10		18	Blanking earth
		11	RGB green signal	19	Video out
		12		20	Video in
		13	RGB red earth	21	Screen / earth

[A53]

If the SCART connector is used to connect an S-VHS video tape recorder, use pin 15 for chroma and pin 20 for sync and luminance.

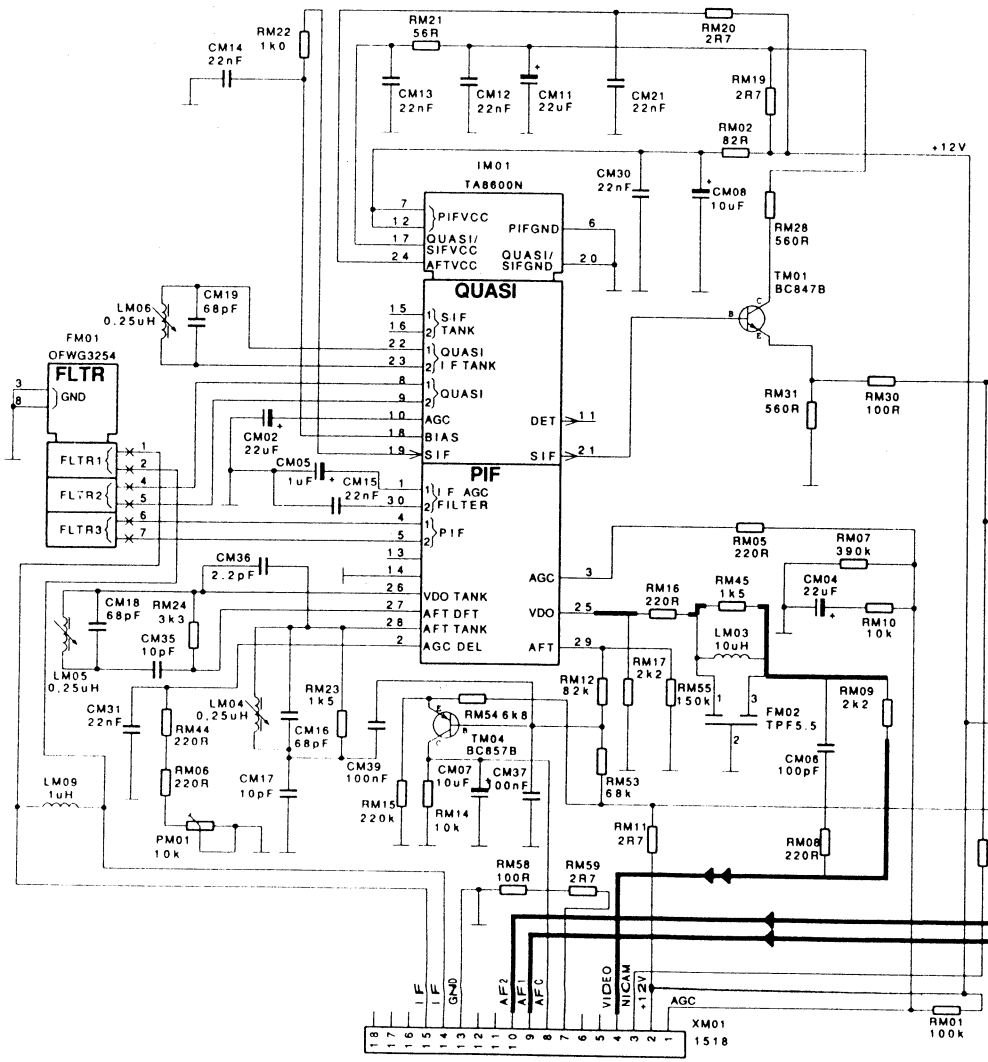


1	
2	Ground
3	Left channel
4	
5	Right channel
6	+12V
7	
8	

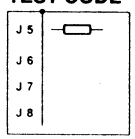
IF MODULE [A1]

5531554-01

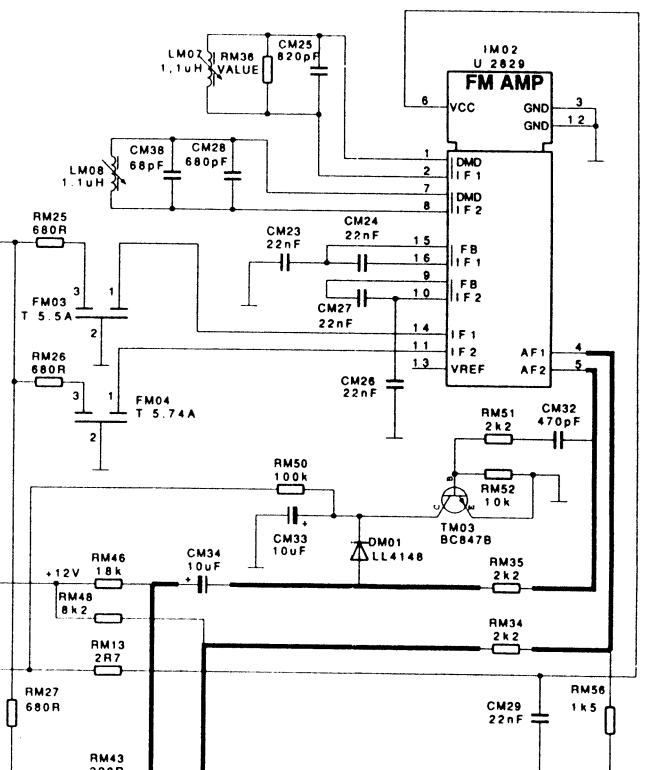
SOUND/VIDEO IF [A2]



TEST CODE [A3]

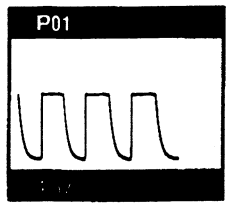


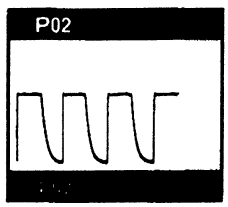
DUAL FM DEMODULATOR [A4]

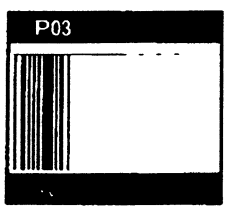


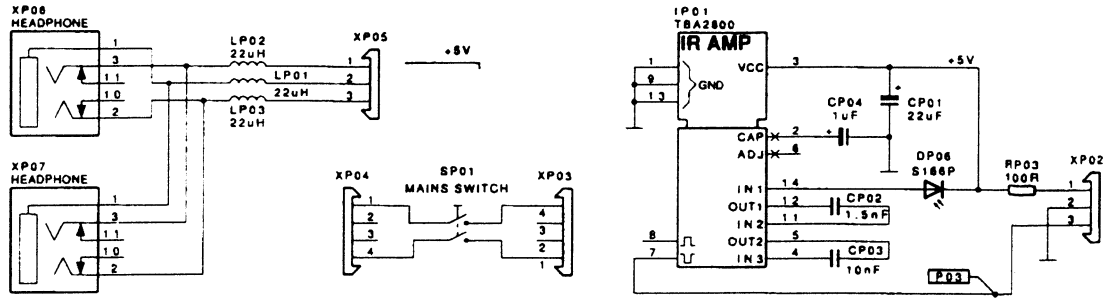
PANEL MODULE

5531670-02



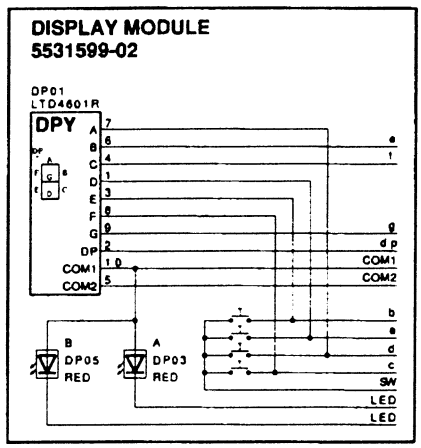


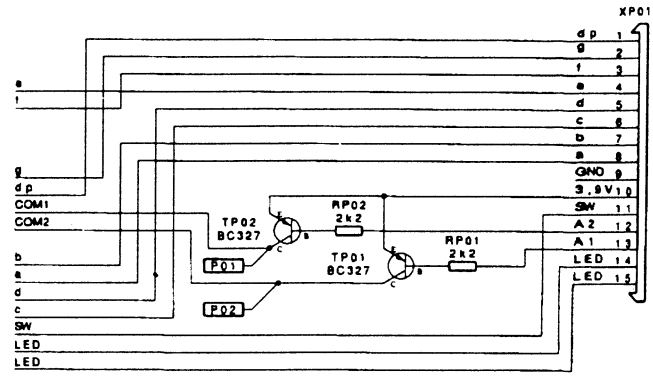




DISPLAY MODULE

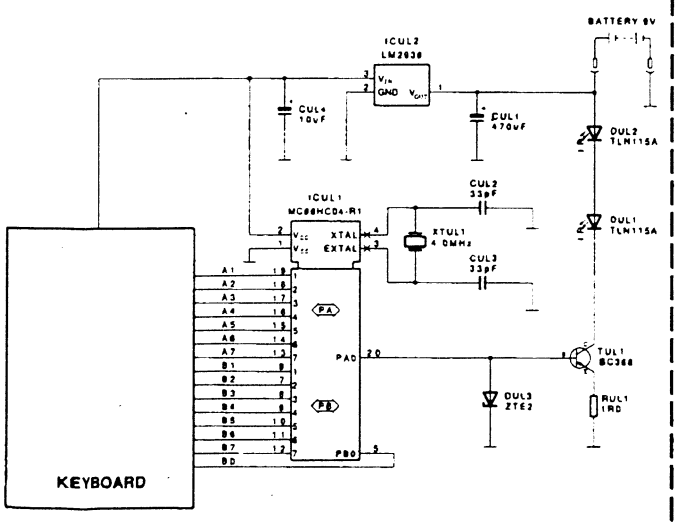
5531599-02





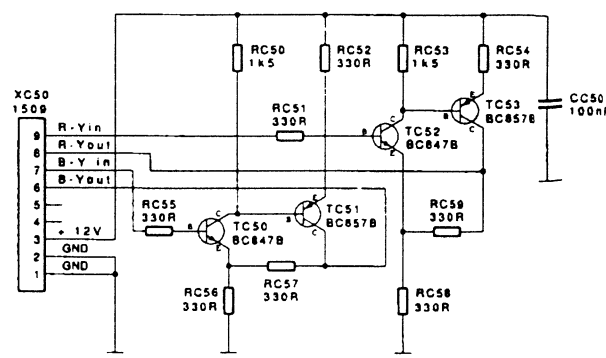
IR TRANSMITTER

STUL68



AMPLIFIER MODULE

55 31605-01



SALORA
PL 14, 24101 SALO, Finland
Tel. 924-3011, Telex 6818 SARA SF

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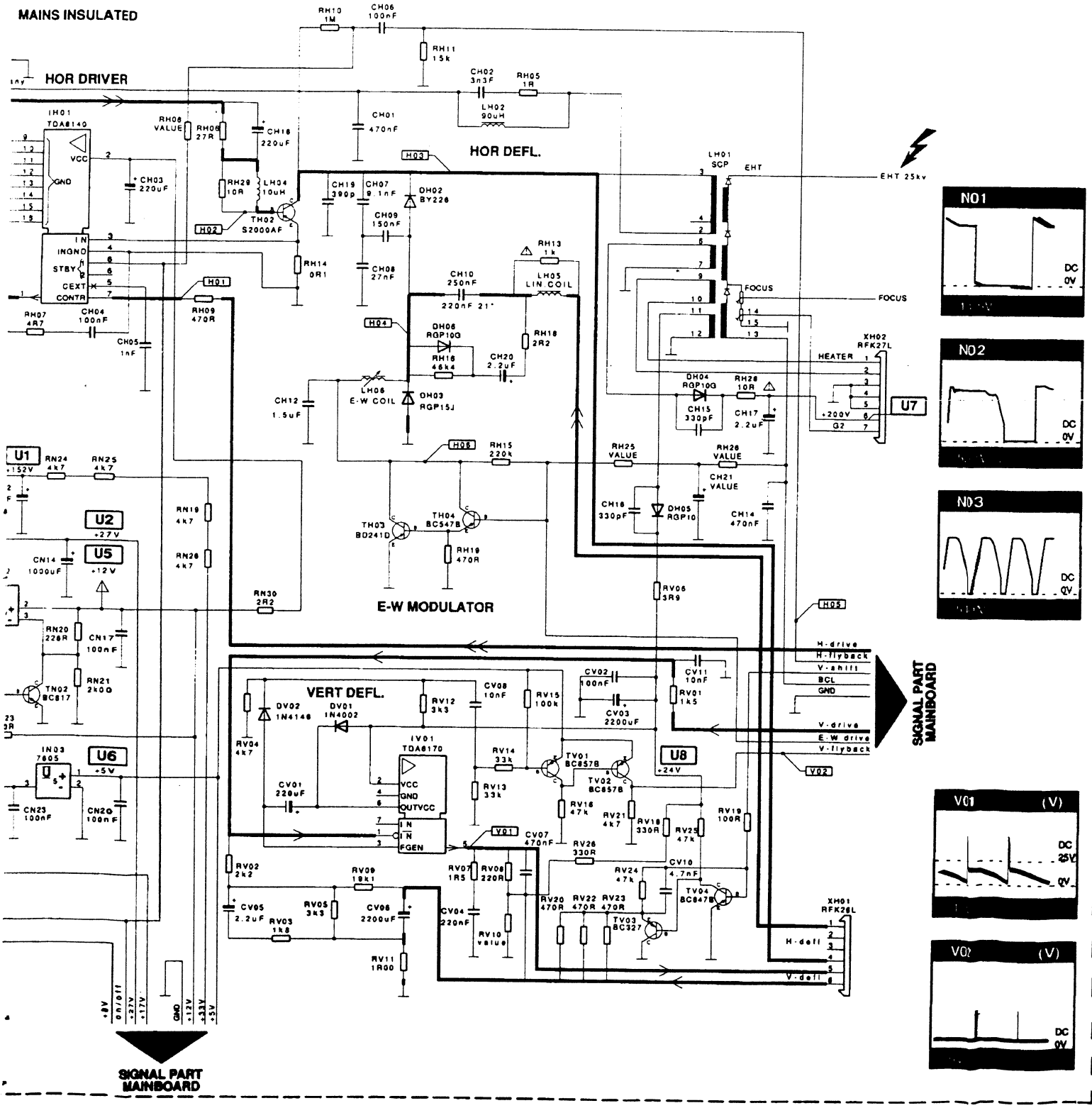
N.B. Safety components marked with ⚠ must be replaced with original or approved components only and must also be mounted as the original. All printed boards and the back cover are also safety components.

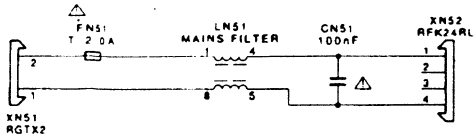
The manufacturer reserves the right to change the design and specification without prior notice.

Audio Freq. Signal | Composite Video (FBAS) Signal | Vertical | Horizontal | IIC-bus



MAINS FILTER MODULE

55 31576-02



"VALUE"

Some components in the diagram are marked "VALUE", indicating that the PC– Board is prepared for a component in this position.

Note that this model is not equipped with any components in these positions.

N.B
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The

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Sig

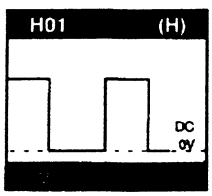
MAINS PART MAINBOARD

55 31600-02C/-03

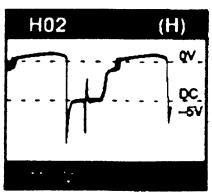
(H)

(H) : 10us/div
(V) : 5ms/div

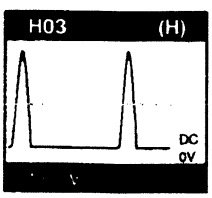
H01 (H)



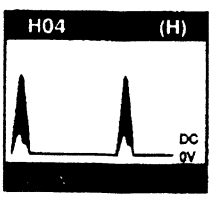
H02 (H)



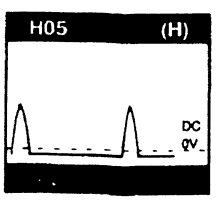
H03 (H)



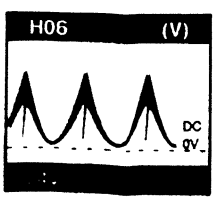
H04 (H)



H05 (H)



H06 (V)



MAINS CONNECTED

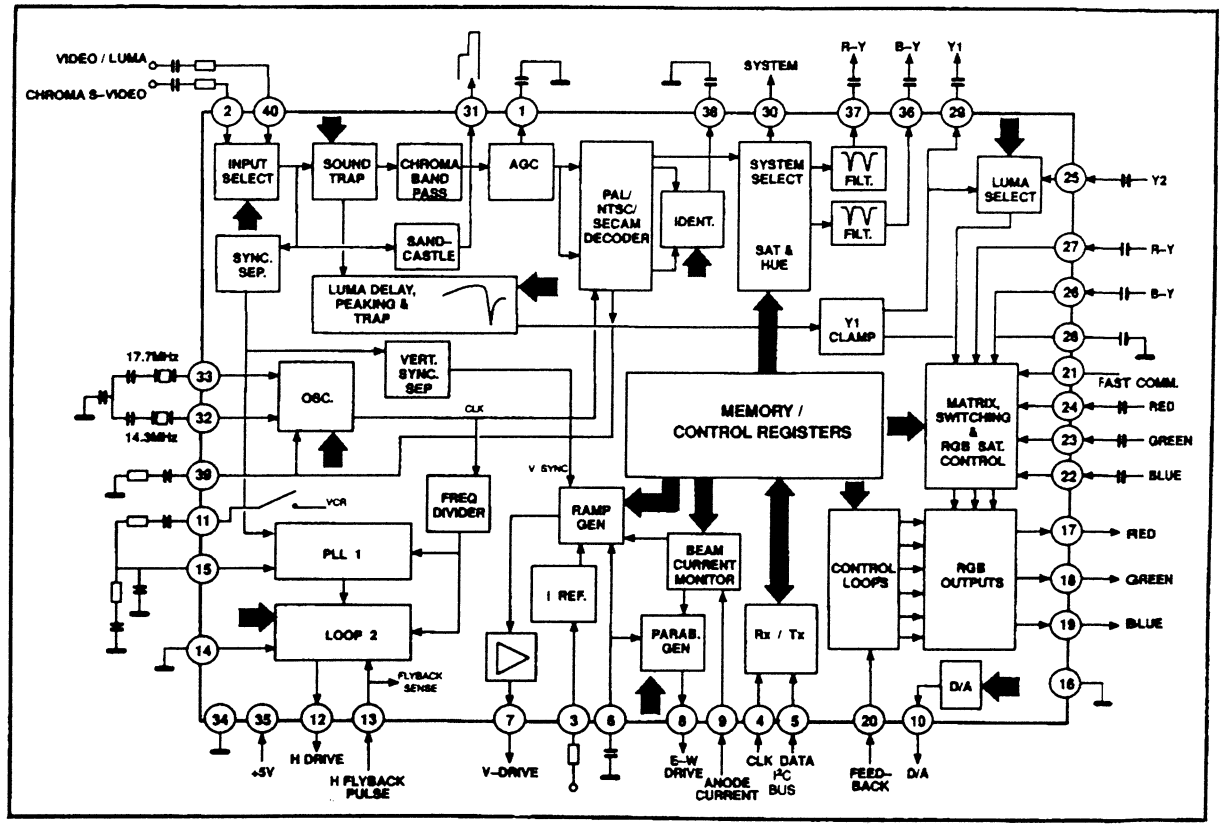
MAINS INSULATED

HOR DRIVER

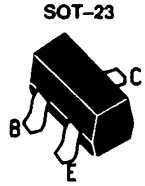
POWER SUPPLY

SIGNAL PART MAINBOARD

BLOCK DIAGRAM MC 44000 (IF01)



SOT-23



BC 807-25:
TF09, TL01,TP01, TP02

BC 817-25:
TD05, TF05, TN02

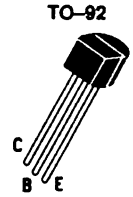
BC 847B:
TC50, TC52, TD01, TD02, TD03, TD04,TF01, TF02, TF08, TF10, TL02, TM01, TM03, TV04, TZ01, TZ02, TZ04 - 10

BC 848B: TA01

BC 857B:
TC51, TC53, TF03, TF04, TF06, TF07,TM04, TV01, TV02, TZ03

BFS 20:
TL50

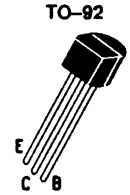
TO-92



BC 327-25:
TV03

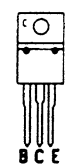
BC 547B:
TH04

TO-92



BC 368:
TA02, TA03, TN03

TO-220



BD 241D:
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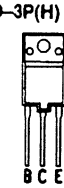
TO-3P(H) IS



S 2000 AF:
TH02

TO-220 IS

2SK1118:
TN01